CENTENNIAL PAPERS

Standing Committee on Transportation and Land Development (ADD30)
John Renne, Chair

Transportation and Land Development

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INTRODUCTION

The Transportation and Land Development Committee (ADD30), a standing committee of the Transportation Research Board (TRB), was established in 1972 to improve the understanding of the interrelationships between transportation and patterns of urbanization, along with the economic, social, and environmental consequences of transportation and land development choices. Topics that fall within the committee's purview include:

- the effect that transportation infrastructure has on urban form and development;
- the impact that urban form, development, and design has on travel behavior;
- the impact that all the above factors has on energy efficiency, sustainability, and resilience of our cities and regions; and
- tools and techniques for understanding and influencing these relationships.

This article has been prepared for the TRB's 2020 Centennial to take stock of the transportation-land development field, review the committee's accomplishments, and outline future directions for research on transportation and land development.

A BRIEF HISTORY OF TRANSPORTATION AND LAND DEVELOPMENT

It all started with Lucy. Standing on her two legs 3.2 million years ago allowed her to break away from trees to roam long distances. Indeed, it could be said that Australopithecines and their progeny invented sprawl as bipedalism increased their range and by freeing hands, they could invent such things as wheel and, eventually, the automobile.

For its part, the wheel arrived about 6,000 years ago, coinciding roughly the domestication of horses, and with them the transformation from hunter-gathering to agrarian societies, followed by the rise of cities. Feet, wheel, and horse served humans well for thousands of years. But cities became congested and given that animals were the primary means of moving goods and people, they also became quite smelly and unsanitary.

Streetcars, first horse-drawn then powered, emerged in the middle 19th century, allowing those who could afford it to move into America's first true suburbs. But another technological breakthrough soon occurred: the bicycle. Once perfected, the bicycle enabled people of all means to travel distances too far to walk – perhaps about five miles

(Rodrique, 2013). Bicyclists were the first to lobby for paved roads in American (Wells, 2013) and the bicycle allowed development to occur between streetcar lines, thus filling in valuable real estate. In 2020, we forget the role of the bicycle in reshaping urban America between about 1880 and the early 20th century (Friss, 2015), but the bicycle may have done more to expand the territory of urban development than any technology, until the automobile.

Automobiles first emerged in the late 19th century and initially were a rich man's toy. The development of mass production on assembly lines changed that and car ownership grew rapidly. By 1920, when TRB's predecessor, the National Advisory Board on Highway Research, was formed in New York City, cars had become affordable to all but lower-income households. Indeed, during the 1920s, nearly 30 million automobiles were built and sold[1]—a feat considering there were only 30 million households in 1930.[2] Clearly, the public was hungry for the freedom this form of mobility offered.

The Great Depression and World War II slowed automobile purchases and use—gasoline was rationed during the war and almost no vehicles for private use were manufactured. After the war, automobile production resumed and auto purchases and use skyrocketed. The states and the federal government invested massively in highway upgrades and expansions, the Interstate Highway program was their most visible achievement. The greatly expanded system of motor vehicles and highways offered fast, safe, efficient, convenient transportation for both passengers and freight, supporting the growth of urban agglomerations. Beltways and radial highways brought locations far from traditional job centers into acceptable commute range; urban agglomerations could be geographically larger than before. Reduced costs of transportation improved productivity. As the nation's highway system expanded massively, so did its urban form. The automobile rapidly supplanted public transit as the chief means of mobility. America became a suburban nation, and many of the new suburbs were developed without sidewalks and with little or no transit service, but with plentiful parking for automobiles (Duany, 2005). Federal housing policy and institutional commercial real estate finance rules shifted to prioritize development in low-density, car-centric communities (Wells, 2013).

Figure 1 depicts the evolution of urban form as means of mobility have changed. Figure 2 shows how autos and transit have changed over the last century.

[1] https://www.autonews.com/article/20000828/ANA/8280853/1920s.
[2] https://www.infoplease.com/us/household-and-family-statistics/us-households-size-1790-2006.

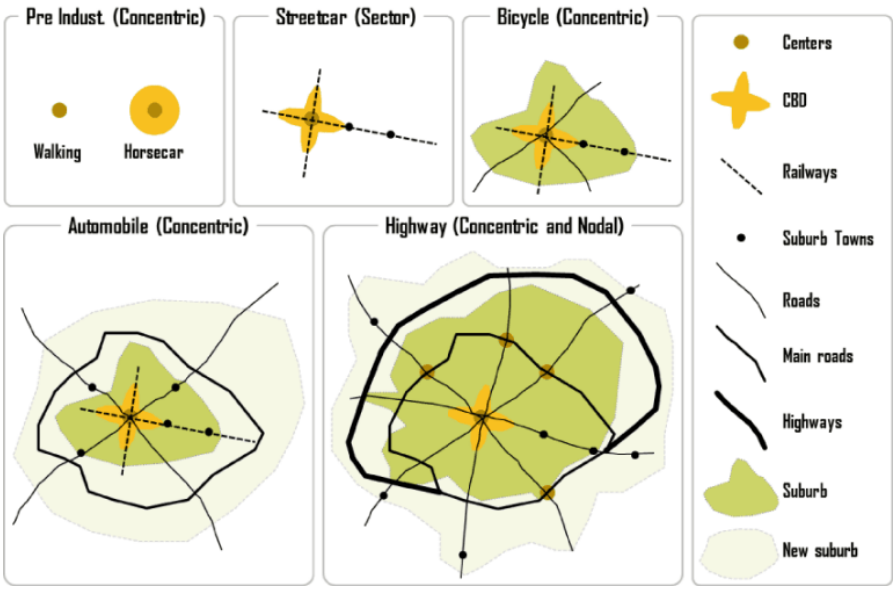

Figure 1 Evolution of urban form over 3.2 million years with respect to mobility and land use

Source: Jean-Paul Rodrique (2013). Used by permission.

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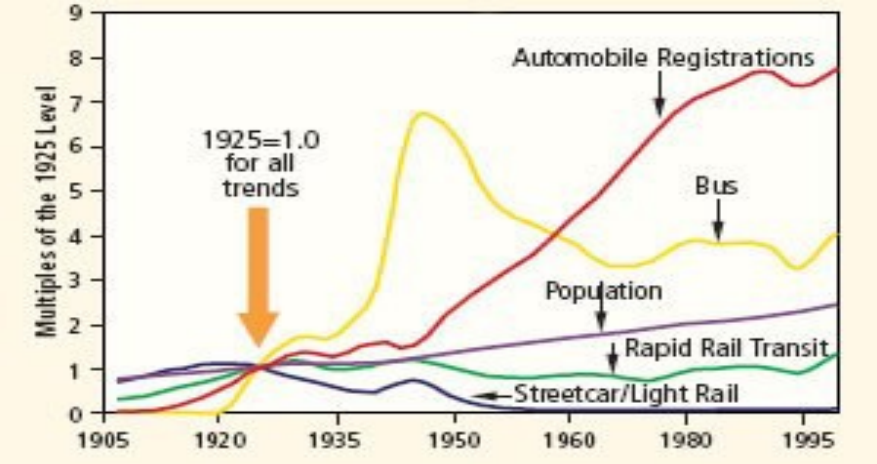

Figure 2 Change in Transit Ridership, Population, and Automobile Ownership Relative to 1925

Source: Miller (2004).

Highway building was not always happily received. As early as the 1950s and continuing through the 1970s, freeway controversies roiled San Francisco, Boston, New Orleans, Memphis, Los Angeles, and Atlanta. Adverse community and environmental impacts of transportation systems became matters of public consternation, and legislation soon was adopted to mandate their greater consideration in transportation planning and design. Studies in the 1960s produced evidence linking auto emissions to unhealthy air, and the federal Clean Air Act Amendments of 1970 addressed the problem by mandating emissions controls on automobiles and calling for additional transportation controls in areas that still could not meet health standards. Studies decrying the costs of sprawl

made the news, and while scholars recognized that many factors had contributed to the outward expansion of urban areas in the postwar years – growth in the population and the economy, increased prosperity, lower land costs and less regulation at the periphery, policies supporting home ownership, subsidized water, power, and related infrastructure, lifestyle preferences, de facto and de jure segregation - the role of highway programs in enabling sprawl was often emphasized. The Arab oil embargo of 1973, and a second embargo in 1979, led to uncertain fuel supplies and unstable prices, adding to concerns about auto dependency.

Meanwhile, transit companies were failing. By the late 1950s, many state and local governments were implementing public takeovers of weakened systems. In the early 1960s the federal government stepped in, first with capital grants and later with operating assistance. Soon, federal assistance was enticing many cities to invest in new transit systems, but this time the policy was implemented with public dollars and, with few exceptions, without a specific link to development around the stations. Programs promoting carpooling, vanpooling, subscription bus services, and dial-a-ride paratransit services also were offered in many urban areas (Ferguson, 1990; Meyer, 1999). Still, auto ownership and use continued to grow, and by the time the Interstate Highway program drew to a close in the late 1980s, many of its facilities were in need of significant repairs and experienced heavy congestion. At the same time, new transit systems were experiencing cost overruns and falling short of ridership projections (Kain, 1990; Pickrell, 1992; Flyvbjerg, 2003), leading some to question whether transit could play an important role in urban development in an era of near-ubiquitous highways and autos (Giuliano, 1995).

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) amounted to a major change in transportation policy. It took a multi-modal approach to transportation planning and funding, created programs focused on congestion relief and air quality improvement, mandated performance monitoring, and gave significant additional powers and responsibilities to metropolitan planning organizations. Subsequent legislation has continued a multimodal emphasis and funding for congestion relief and air quality improvement programs; funding for bicycle and pedestrian facilities and for multimodal freight programs has been significantly expanded. However, neither ISTEA nor its successors required states or localities to link their transportation plans and programs to specific land and development activities.

Urban land uses and development patterns nonetheless continue to play an important role in transportation planning because they affect the number of trips generated, their spatial and temporal patterns, and the modes used. Thus, whatever policies for land use and development may be in place locally become factors shaping the transportation system. In addition, transportation projects and programs have implications for land use and development that are recognized in federal planning guidance. In particular, the avoidance, minimization, or mitigation of negative social and environmental impacts often requires attention to land use. Noise, air pollution exposures, community cohesion impacts, and impacts on flora and fauna are examples of effects tied to land uses. Thus, the linkages between transportation and land use are a part of transportation planning today even though federal policy mandates are largely absent.

Transportation planners and engineers must also respond to state and local

requirements and it is through these state and local policies that the transportation and land use connections are often made today. For example, some states require capacity analyses and establish level-of-service standards to be met as a condition of development approval. Several states also have requirements that mandate that plans be internally consistent (e.g., the land use element and the transportation element of a city's plan must be compatible) and also horizontally and vertically consistent (i.e., consistent with the plans of other nearby cities and with regional and state plans and in conformity with applicable state laws). A few states have taken further steps to require or incentivize regional and local planning to support compact growth, encourage transit, pedestrian and bike use, and moderate vehicle miles travelled (VMT). Where such state and local policies are in effect, considerable activity around coordinated transportation-land use planning and design is taking place, often raising questions about best practices and efficacy in different situations. In addition, a number of states allow local governments to accept or require developer contributions, in cash or in kind, to help pay for transportation infrastructure; in this way transportation finance is tied to urban development.

From a national perspective, some five decades have now gone by since federal laws promoting transit and aiming to reduce the adverse impacts of an auto-dominated transportation system went into effect. Nearly three decades have passed since ISTEA established a multimodal framework for transportation aimed at reducing congestion, supporting economic development, and improving the environment. An important question is how effective these strategies have been. Land use and urban development patterns surely influence the transportation system performance, and in turn are affected by transport policies and programs. But the impacts are often contingent on other factors such as growth rates, the types of businesses that form the regional economic base, demographics, the cost of fuel, and housing supply and demand.

The political landscape is complex. Sustainable development strategies often entail an integrated approach to transportation and land use, a process that is complex under the best of circumstances but often is operating in difficult conditions (Kennedy et al., 2005). In the nation's capital and among some states, such strategies and approaches have generated strong opposition in some quarters; the federal government and some of the states have stepped back from action concerning greenhouse gas reduction. Yet a number of states are actively working together on implementing greenhouse gas (GHG) reduction strategies. At the local level the situation is similarly mixed. Big cities including Austin, Boston, Chicago, Houston, Los Angeles, New Orleans, New York City, Philadelphia, Portland, San Francisco, Seattle, and Washington, D.C. are part of C40, an international coalition of cities dedicated to greenhouse gas reduction through urban development policies and practices that are at once environmentally positive, economically sound, and equitable (Deakin, 2019a.) Many other cities have developed climate action plans (Salon et al., 2014) and transit-oriented development (TOD) has been a popular element in many of those plans, attracting support from local officials, developers, and environmentalists (Calthorpe, 1993; Cervero, 1998). Yet vocal opposition to its supposed "stack and pack" development densities also has arisen (Trapenberg Frick, 2013). Although there is an increasing market for living in TODs, exclusionary local zoning policies have limited their growth (Levine, 2004). Of the 4,400 fixed-route transit stations across the United States, only 36% achieved a density of 8

dwelling units or greater, which is arguably a minimum density to support rail or bus-rapid transit across the station area (Renne, 2013).

The turn of the 21st century has seen additional shifts in Americans' use of transportation modes. Between 1980 and 2020, most American metropolitan areas with more than one million people added light rail transit, bus rapid transit, and streetcars to their mobility options. Figure 3 illustrates the growth in the use of these systems and the change in VMT by automobiles, along with population growth between 2003 and 2014. The population grew by nearly ten percent while VMT grew by less than five percent. Total miles traveled by passengers on "fixed guideway transit" systems grew by about a third. To be sure, more than eighty-eight percent of all personal miles traveled in the United States are still via automobile, and a large percentage growth in rail transit use from a small base can be deceptive. But there is solid evidence of considerable slowing or even flattening of VMT growth. The causes of this change and its likelihood of persisting into the future are current matters of debate and research.

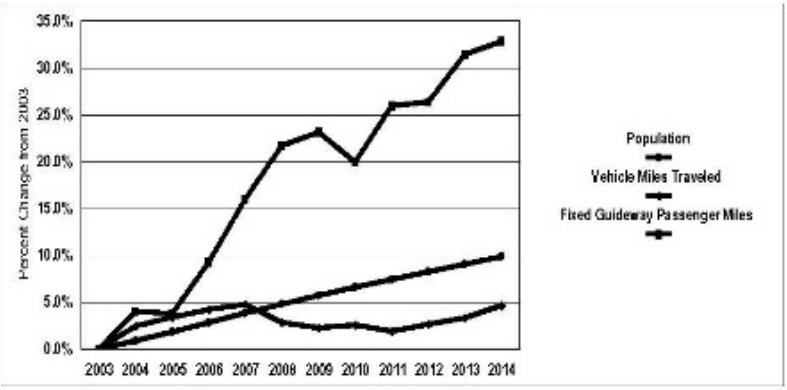

Figure 3 Percent change 2003 to 2014 in population, vehicle miles traveled, and fixed guideway transit passenger miles

Source: Nelson (2017).

Observed increases in the use of fixed guideway transit (Nelson, 2017) are accompanied by increased cycling and walking (Pucher and Buehler, 2012, Sanders and Cooper, 2013, Handy, 1996), for which capital investments also have been made in many cities and towns. It also appears that young people are waiting longer to obtain a driver's license and to own a car (McDonald, 2018), although the causes are complex. Furthermore, the use of shared cars, bikes, scooters, and ride services is growing in popularity (Shaheen, 2010; Martin et al., 2010; Chan and Shaheen, 2012.) On the other hand, the growth in transport network companies has hollowed out the taxi industry and also appears to be cutting into bus transit use. These shifts may or may not signal longer-term changes in transportation and urban development patterns or preferences; other factors ranging from lifestyle preferences to changing costs of fuel and car insurance could be important influences.

Today, potentially transformative changes are occurring in the transportation-land use ecosystem that demand attention. Electric powered, autonomous vehicles are moving from the drawing boards and test beds to the nation's streets and highways, and

each year new vehicles incorporate more of the technologies that could eventually allow driverless transport. How such vehicles will affect transportation is not yet clear. Some argue that land development will further disperse as the onerousness of driving is reduced; others emphasize the desire for easy accessibility that dense, mixed use urban development facilitates. Vast changes are also anticipated in urban land use patterns. Between 2015 and 2050, more than two-thirds of all nonresidential development will be redeveloped or otherwise repurposed (Nelson, 2013). How this space is put to use could significantly alter not just land use patterns but travel demand as well.

Thus, there remain many unanswered questions about transportation-land use interrelationships and future prospects so there is plenty to study in the coming years.

THE TRANSPORTATION AND LAND DEVELOPMENT COMMITTEE

Against this background, the Transportation and Land Development Committee has examined current trends, identified research needs, called for papers, and organized workshops and conference sessions in order to strengthen the theoretical framework and empirical basis for policy and practice in the area of transportation and land use interrelationships. The committee has brought new perspectives into the debate, supported methodological advances, evaluated alternative policies and their performance, and identified best practices.

The scope of the committee's work has changed over time, reflecting the research frontiers and the policy debates of each decade. Early work looked at the role of highway investment in shaping urban form, considering the impact of beltways in the United States – their potential for inducing traffic, and their effects on location decisions and urban sprawl. Committee interests also extended to the use of road investments as a development tool, both in the United States and in developing countries.

Starting in the 1970s and continuing through the 1980s, the impacts of rapid growth in auto ownership and vehicle-miles traveled began to be debated. There was growing concern that the go-anywhere mobility that automobiles offered was being stymied, with cars too often stuck in traffic. Much of the committee's work during this period focused on the traffic congestion problem and its links to development patterns, especially in auto-dependent suburbs. The committee published a circular on suburban activity centers and sponsored numerous conference sessions dealing with strategies to alleviate congestion. Consonant with the committee's emphasis on the connection to land development, the committee explored emerging policies such as trip reduction ordinances and incentives and local governments' use of development exactions and impact fees to help finance commute alternatives such as carpool matching programs, vanpools, and transit pass subsidies. Land use plans and zoning linking development levels to transit availability were another topic of interest to the committee. These topics took on added salience in the 1980s when many metropolitan areas were having difficulty achieving national ambient air quality standards and many of the strategies for reducing emissions also had potential for congestion relief.

Financing for highway and transit improvements through public-private development agreements also was a concern of the committee during this period. The committee's work included the examination of developer provision of street, highway, and transit rights-of-way, access points, or entire transportation facilities as part of the development process. Other topics of interest included transportation agency sale or use

of excess land for development purposes, international practices for joint development of activity centers in conjunction with airports, rail terminals, and transit stations, development of air rights over highways and transit stations, and the design of stations and terminals containing user-friendly, revenue-generating retail and commercial uses.

The committee examined parking policies both as a consumer of urban land and as a strategy that could be used to affect mode choice and congestion. Among the topics addressed were shared parking for mixed use districts, parking consolidation strategies, revision of zoning ordinances to reduce excessive parking requirements, neighborhood on-street parking controls such as permit parking, and linkages between parking requirements and trip reduction strategies. The committee also looked at the effects of urban signalized arterials on the commercial districts and residential areas through which they passed, considered urban freight issues, and explored and considered bus priority treatments, traffic calming strategies, and other ways of better incorporating multimodal services into urban and suburban street designs.

In the 1980s studies of the impact of transit systems such as BART and Washington Metro included land use changes as one of the issues of concern, and the committee engaged in investigations of the topic. Papers examined development levels and land use changes around stations and debated the extent to which transit was driving the changes, as well as whether the changes amounted to new economic activity or merely location adjustments. Conference sessions also included representatives of the real estate industry, banks and other real estate finance groups, to discuss issues of finance, risk, and marketability. In the 1990s, as interest in promoting transit-oriented development grew, the committee published papers that tested the effects of density, a mixing of uses (diversity) and design on mode choices. Later papers refined the metrics and introduced additional factors to test the efficacy of various station area and larger-scale urban and regional strategies that aimed to establish dense, walkable and bikeable mixed use communities linked to one another by transit. Papers sponsored by the committee also examined how mode share and VMT changes were affected by such factors as location in the region, regional and subarea growth rates, the levels of service offered by various modes, the densities and scale of development, and the specific land uses and activities included.

Much of the work of the committee has been oriented toward city and regional agencies and their policies and practices. This is a consequence of the dominant way of organizing land use planning in the United States: with a few exceptions, it is a local responsibility, although the states establish the framework under which localities can operate. Likewise, in the majority of places, cities and counties are responsible for most local streets, signalized arterials, bike lanes, and pedestrian facilities, and transit services are most often provided by a local or regional agency. Nevertheless, the committee has been engaged with matters of federal and state policy. These include policies authorizing local actions, providing financing for local programs and projects, and setting the rules for coordination of urban development with transportation. A major focus of the committee's work engaging state DOTs has been on corridor preservation and access management. Design and operation of state highway sections that serve as main streets or pass by sensitive land uses such as hospitals and schools also have been addressed by the committee.

The committee continues to take a global look at many issues, as well. Concern

about global warming and sustainable development has increasingly influenced committee activities, beginning in the 1990s and continuing today. Studies exploring scenarios of sea level rise and its implications for coastal land uses and transportation as well as strategies for the development of communities more resilient to extreme weather events, fires, earthquakes, and other natural disasters are among the topics of concern to the committee. And with the push toward smart cities utilizing information and communication technologies (ICT) to enhance the quality and performance of urban services including transportation, many new topics of interest to the committee are opening up.

Through the decades, the committee has been a strong supporter of improved data and methods for transportation-land use planning and analysis. We cosponsor a Subcommittee on Integrated Transport Modeling with Transportation Demand Forecasting (ADB40) and more recently the Transportation Energy Committee (ADC70). The committee has sponsored conferences and symposia on integrated transportation-land use models, has participated with federal agencies in setting standards for best practices in transportation-land use modeling, and has shown how advances in computation technology (from microcomputers to supercomputers) and applications (e.g., GIS, mobile apps) can be put to work in analyzing transportation and land use. Papers sponsored by the committee have shown how a wide variety of data – from aerial photography to GPS, and can be used to better understand land use-related transportation issues such as trip generation and duration by time of day.

By supporting theoretical and empirical advances in the area of transportation and land development and engaging in the debates over the issues raised, the committee has made important contributions to scholarly thinking, educational norms, and practice. A common view 50 years ago was that transportation specialists did not engage in land use issues but left that to city planners; likewise, city planners for the most part left transportation decisions to transit specialists and transportation engineers. Today, many city planners are transportation specialists, many transportation engineers have been trained to engage with land use issues, and both groups are trained in urban economics, exposed to social and environmental considerations, and taught to consider the equity of their work. The result is a richer, more creative, and more responsible practice of the two intertwined fields. Simplistic analyses treating location and land use as unaffected by transportation investments and choices have largely given way to more sophisticated and realistic investigations of alternative scenarios using interactive and integrated modeling approaches. New data sources and analysis approaches are enabling social and environmental factors to be integrated into transportation and land use plans rather than treated as “impacts”. The Transportation and Land Development Committee helped to foster these changes through its work over several decades.

Among the many contributions of the committee are the following:

- Sponsored a conference on suburban activity centers drawing attention to the impacts that suburban employment was having on travel demand, published as TRB Circular 359 (1990).
- Co-sponsored a conference with the Texas Transportation Institute on current and future transportation-land use models interactions, organized in partnership with the committee’s subcommittee on land use modeling (1995).
- Cooperated with CODATU and the World Conference on Transport Research

Society (WCTRS) to sponsor conference sessions on transport in the developing world, working through a subcommittee on international transport. The subcommittee later became an independent committee of TRB.

- Organized sessions calling attention to strategies like traffic calming, multimodal street design, parking management, nonmotorized traffic, and pricing and their linkages to urban development and quality of life.
- Organized sessions on alternative ways of funding urban transportation projects, including impact fees, development exactions, and public-private partnerships.
- Co-sponsored a national peer exchange on linking land use and transportation and published Circular E-C100, presenting the results (July 12-13, 2005, Boston, Massachusetts).
- Co-sponsored the conference, Best Practices: Coordination of Transit, Regional Transportation Planning and Land Use, Denver, Colorado, August 26-28, 2007, in cooperation with the Federal Transit Administration, American Public Transportation Association, National Association of Regional Councils, Reconnecting America, and other TRB committees.
- Contributed a white paper to the 2010 TRB Environment and Energy Research Conference, Raleigh, NC, June 6-9, 2010.
- Collaborated for the publication of special issues of journals on the topics of land use and transportation, including *Research in Transportation Economics* (Vol. 60 in 2016 and Vol. 67 in 2018).
- Contribution to the TRB International Transportation and Economic Development (I-TED) conferences held in 2014 and 2018
- Provided testimony on the importance of land use to the TRB Future Interstate Study (2018).
- Sponsored a series of webinars on topics ranging from scenario planning to mixed-use development trip generation (ongoing).

CHALLENGES FOR THE FUTURE

To identify coming challenges and help shape plans for the future, a survey was administered through the committee's list serve. Respondents were asked to rank the importance of a list of research priorities identified elsewhere in the literature (Deakin, 2019b). Because new transportation and communications technologies were seen as likely to have a significant (and in many cases, disruptive) role on transportation and land development in the coming decades (Sperling, 2018), the survey included questions on the magnitude of the disruption expected, as well as the anticipated direction of impacts (positive or negative) as they relate to land development. Throughout the survey, respondents were given the opportunity to provide comments and suggest additional topics for consideration.

The list serve included contact information for some 200 people who had participated in the committee's activities. The response rate was approximately 11.5%, including 18 responses from the committee's own members (N=10) and friends (8) and five others. Respondents ranged from new participants to those with 30 or more years of participation (9 years, on average) and included academics (10), public employees (4), and employees from the private sector (7). Disciplines ranged from planning (10) and policy (5) to engineering (3) and economics (3).

Regarding the effects of specific transformative technologies (e.g., autonomous vehicles, e-scooters, e-commerce) on land development, respondents expected autonomous vehicles (AVs), e-commerce, and connected vehicles, in that order, to have the greatest levels of disruption on land development. Respondents generally were optimistic that AVs would have positive impacts overall on community's access to employment opportunities and economic growth, but many were concerned about issues of equity—specifically the potentially uneven access to benefits from AVs. Respondents were split fairly evenly on whether AVs could positively or negatively impact emissions or climate resilience for communities, and multiple respondents suggested that understanding how policy and practice can and should address climate change would be one of our greatest challenges moving forward. But to even begin to evaluate the impact of AVs (or any other new mobility technology), respondents argued that we need more information about how AVs are being implemented in terms of the location (e.g., region, timing of implementation), varying performance metrics (e.g., for public health: improvements in crashes versus improvements in access to destination), energy sources (e.g., electric, gasoline, natural gas), and whether AVs will be used in sharing economy formats. Because of this, fast-paced assessments and retrospective evaluations of pilot programs may become increasingly important to developing robust policies for ever-changing technologies.

Considering the broader list of transportation and land use issues, several research themes were identified as being of great importance in the near-term future. Overwhelmingly, respondents indicated a need for the following cross-cutting topics:

- understanding the **unintended consequences** of land use development patterns (e.g., the impacts of TOD, compact development, and transportation innovations **for equity, displacement and affordability)**;
- considering the **ethical implications and societal impacts of using smart city technologies and large-scale data collection** to manage cities and transportation networks (including legal and privacy concerns);
- **developing regulatory and zoning policies for emerging transportation technologies** (e.g., transportation network companies, e-commerce and urban freight) to encourage and ensure growth patterns that benefit communities (e.g., livable and healthy communities, multimodal transportation systems, access to opportunities across urban contexts);
- **finding a balance between financing existing infrastructure and new technologies,** and potentially **redefining roles and boundaries** across public entities as well as between public and private entities;
- understanding the multidirectional relationships among **transportation, land development, and climate change and resilience**; and
- **training and educating current and future professionals** to be able to deal with the multifaceted challenges and uncertainties of transportation innovations and the corresponding multidisciplinary impacts on land use and society.

Respondents also noted the difficulty of predicting future research needs with any accuracy even for the next decade, much less for the next 100 years. As one respondent put it, "100 years? Can we try to get the next 10 years right?"

CONCLUDING COMMENTS

Who would have imagined in 1920 that the basic forms of transportation shaping America would be the same a century later, in 2020? By 1920, we had trains and streetcars and subways, automobiles and trucks. We even had scheduled airline service.

Considering that wide use of the telephone and electricity had scarcely existed since the 20th century began, who would have thought that there would no more major transportation inventions over the next century?

That said, the United States is on the cusp of transformative development patterns driven by revolutions in transport technologies (Sperling, 2018). Though the modes won't change the systems will. Sixty years ago, popular science and mechanics journals predicted that by 2000, people would be driving in robotic vehicles. They were off, perhaps by 40 years, but that day is imminent. And with it will come vast changes in the interaction between land use and transportation. The trouble is, we don't know what those transformations will be.

Popular sentiment seems that connected autonomous vehicles (CAVs) will put urban sprawl on steroids as people and firms can locate anywhere and not worry about driving— and use driving time for work or leisure. But there is another perspective. If CAVs free up millions of acres of surface parking and the real estate market converts that land into more productive uses, CAVs may make land uses *more* connected, and economies more productive. Transit as we know it today could fade away, or it could be transformed in ways that improve riders' mobility and accessibility to land uses. Together with the massive replacement of the building stock that is anticipated to occur over the next decades, transportation transformations might offer a chance to reimagine cities.

As with other TRB committees, the Transportation and Land Development Committee is poised to provide leadership in managing today's transportation and land use systems and in learning how emerging technologies will transform America's built landscape and indeed be transformed by it.

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Appendix: Transportation and Land Development Committee Chairs and Staff Over the Years

TRB Code	Chair	Affiliation	TRB Staff	Start	End
A1D02	Irving Hand	Pennsylvania State University	Kenneth E. Cook / Floyd I. Thiel	1973	1978
A1D02	Rodney E. Engelen	Barton-Aschman Associates, Inc.	Kenneth E. Cook / James A. Scott	1978	1985
A1D02	George T. (Terry) Lathrop	City of Charlotte Dept. of Transportation	Kenneth E. Cook	1985	1991
A1D02	Elizabeth A. Deakin	University of California, Berkeley	James A. Scott	1991	1997
A1D02	Robert T. Dunphy	Urban Land Institute	James A. Scott	1997	2003
ADD30	Jonathan L. Gifford	George Mason University	Kimberly M. Fisher	2003	2009
ADD30	Samuel Seskin	Parsons Brinckerhoff Quade & Douglas, Inc	Kimberly M. Fisher	2009	2014
ADD30	John L. Renne	Florida Atlantic University	William B. Anderson	2014	2020