

# 21st Century Transportation Planning Challenges

by Hannah Twaddell

American settlement patterns have always been strongly influenced by our transportation technology. In 18th century America, the best locations for cities and commerce were accessible to major rivers and ports. Few people lived in “backwater” communities. Once you got off the boat, however, you had to rely on the power of feet – human or horse. Within cities, all activities had to be located within walking distance of each other. Suburban growth extended about as far as one could go within a day’s ride from town.

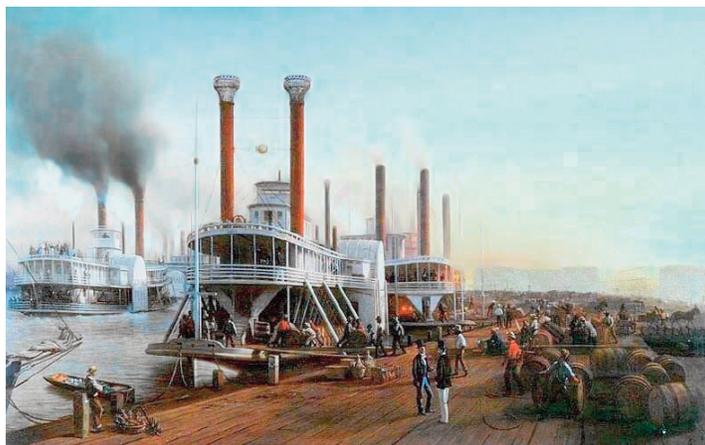
With the advent of steam- and diesel-powered trains in the 19th century, people began venturing away from the rivers and built new cities across the landscape. However, since foot-power was still the dominant form of local travel, rail towns retained the compact form of older communities.

The automobile allowed us to spend the 20th century spreading out in all directions. Networks of highways and local roads created opportunities to build cities virtually anywhere. With the power of hundreds of horses under the hood, cars made it possible for people to live miles away from daily activities such as work, school, and shopping. No longer confined to the walkable dimensions of one-horse towns, we shaped new communities around large street networks and parking lots.

As the 21st century dawns, the American dream made possible by the remarkably fast, flexible mobility of the automobile has begun to take on nightmarish qualities. It is becoming clear that our collective dependence upon the automobile is threatening our natural

environment, our health, and our economic vitality.

As our anxiety about these problems grows, however, so does our creativity. We are in a time of fundamental change that portends both danger and opportunity.



“Giant Steamboats at New Orleans,” by Hippolyte Sebron (1853).

## Our Natural Environment

A 2009 report by the U.S. Environmental Protection Agency indicates that fossil fuel combustion for transportation is responsible for a third of America’s CO<sub>2</sub> emissions, which are an important ingredient of the “greenhouse gases” associated with global climate change.<sup>1</sup>

The three most prominent factors affecting the transportation sector’s emissions are the fuel economy of vehicles on the road, the types of fuels used, and the overall amount of driving by all vehicles, expressed as vehicle miles traveled (VMT).

Federal agencies, state governments, and private sector entrepreneurs are working on the tasks of making vehicles more energy-efficient and finding new sources of fuel. But our success at reducing VMT depends largely upon our ability to plan and locate communities in ways that reduce our need to drive. To achieve this goal, it is essential for local

and regional planners and decision-makers to redesign existing and new places so that people can choose to walk, bike, or use transit for daily trips.

Studies show that improving the proximity and connectivity of activities can reduce the overall number of vehicle trips generated within a given area by as much as 25 percent.<sup>2</sup> This, along with operational improvements to improve free-flow movement on local roadways, can make an important contribution toward reducing the amount of CO<sub>2</sub> generated.

Stormwater runoff is another important environmental problem exacerbated by our automobile-oriented development pattern. That’s because roadways, surface parking lots, and driveways result in large amounts of paved, impervious surface which, in turn, can lead to excessive runoff.

As the EPA’s Lynn Richards noted last year in an article in the *Planning Commissioners Journal*, it is important to ask whether street and road widths in our communities are sized appropriately since “over[ly] wide streets will create excess impervious cover.”<sup>3</sup> Richards also touched on the importance of downsizing our parking requirements, pointing out that “parking lots designed for peak demand periods [create] acres of unused pavement during the rest of the year.”

1 *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007* (U.S. EPA, 2009).

2 *Land Use and Site Design, Traveler Response to Transportation System Changes – TCRP-95* (Transportation Research Board, 2003).

3 “Managing Stormwater Runoff: A Green Infrastructure Approach,” *PCJ#73* (Winter 2009); available to order & download at: [www.plannersweb.com/wfiles/w284.html](http://www.plannersweb.com/wfiles/w284.html).

## Our Health

Between 2010 and 2050, the number of Americans aged 65 and older is expected to grow from about 40 to 88 million.<sup>4</sup> According to Census Bureau projections, 20 percent of Americans will fall in this age range by 2050, up from 13 percent today.

The problems that these increasing numbers of older people will face when they lose the ability to drive will be much more than an inconvenience. Without other travel options available, their access to everyday activities and essential services will be sharply curtailed – just when their needs for social connections and medical attention increase.

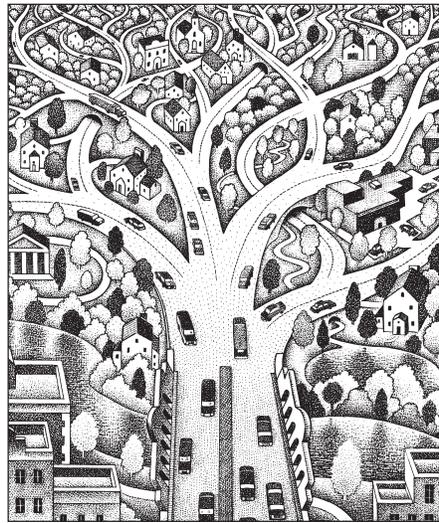
By creating communities where people can get around without cars, we can make a significant difference in the health and happiness of older adults. A 2006 study by the Northern Virginia Transportation Commission found that “seniors from walkable, mixed-use urban and town areas are more mobile, taking 20 percent more trips each week than those from suburban and exurban areas. They are also less likely to be socially isolated.”<sup>5</sup>

Meanwhile, the health of tomorrow’s working-age adults is already being compromised by obesity linked to sedentary living. According to the Centers for Disease Control and Prevention (CDC), 17 percent of children aged 6-19 (more than nine million young people) are obese. That percentage has tripled since 1980.<sup>6</sup> A third of our children in this age range are overweight, a far cry from the CDC’s goal to reduce this figure to five percent.

The Alliance of Biking & Walking, with funding from the CDC, has released a remarkably useful, data-filled report, *Bicycling and Walking in the United*

*States 2010 Benchmarking*.<sup>7</sup> The report, authored by Kristen Steele and Monica Altmaier, points out that “states where bicycling and walking levels are lowest have the highest levels of obesity.” Similar correlations were also found with two other major public health concerns, diabetes and high blood pressure.

Steele and Altmaier note that: “Walking and bicycling have great potential to improve public health. In 2001, 41 percent of trips in the U.S. were shorter than two miles and 28 percent were shorter than one mile. Since bicycling can accommodate trips of up to two miles and most people can walk at least one mile, there is a lot of hope to use this form of travel in our communities.”



Forward-thinking communities such as King County, Washington, are incorporating walkability goals and performance measures into their comprehensive plans, while other places, like Albert Lea, Minnesota, are adopting programs to promote active living. Meanwhile, more and more communities are adopting Complete Streets policies, aimed at designing streets that accommodate not just cars, but bicyclists and pedestrians.

## Our Economy

Our traditional source of revenue for transportation – the gas tax – cannot keep pace with the escalating costs of maintaining the system we have, let

alone paying for new infrastructure. The responsibility for transportation funding has been shifting toward states, localities, and the private sector.

That said, every local official is keenly aware that raising a city or county sales or property tax is even more politically challenging than raising a state or federal gas tax. It’s no wonder jurisdictions all over the country are searching for better ways to negotiate infrastructure investments from developers, and that toll roads are making a comeback.

Nineteenth century transportation investments, from turnpikes to railways, were largely private, for-profit ventures, while the 20th century was the age of tax-supported “freeways” and transit systems. The 21st century is likely to bring about an interesting marriage of the two. Just as we pay transit fares now, we will probably pay more roadway tolls and user fees in the years to come.

## SUMMING UP

We’ve entered a dynamic time in the world of transportation and land use planning. For many years, engineers and policy makers have focused on the goal of increasing the speed with which people can move between places. Upon realizing that we’re literally driving ourselves too far apart, we can right the balance by boosting the importance of two other goals:

- Bringing people and places closer together,
- Providing people with more choices of travel routes and modes between places.

By working together on designing communities that offer more flexible travel choices, we can sustain our communities through the 21st century – and beyond! ♦

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4 *Projections of the Population by Selected Age Groups and Sex for the United States: 2010* (U.S. Census Bureau, 2008).

5 Jana Lynott, et al., *Meeting the Transportation Needs of Northern Virginia’s Seniors: Recommendations for Public Transit Systems and Other Mobility Providers* (Northern Virginia Transportation Commission, 2006).

6 *Preventing Obesity and Chronic Diseases Through Good Nutrition and Physical Activity* (Centers for Disease Control and Prevention, 2008).

7 The report is available to download at: [www.peoplepoweredmovement.org](http://www.peoplepoweredmovement.org).